coolant line **734***c* to direct coolant through the second heat exchanger **742***c* so as to permit coolant cooled by radiator **746**, AGS **748** and fan(s) **726***b* to cool the coolant destined for cooling the auxiliary battery **702***a*. For example, if the outside ambient temperature is 65° F., refrigerant cooling may not be needed to adequately cool the auxiliary battery **702***a* since cooling by the radiator **746** via ambient outside air may be sufficient, and the controller **780***c* therefore controls the bypass valves **744***a* and **744***b* accordingly. The components connected by the first auxiliary battery coolant line **734***b* and second auxiliary battery coolant line **734***c*, bypassing the first heat exchanger **742***b* and refrigerant system components, form an auxiliary battery module cooling loop that is separate and distinct from and independent of the primary battery cooling loop.

[0067] The controller **780***c* (that includes an onboard computer) at the auxiliary battery module **702** can monitor a temperature sensor **784** at the auxiliary battery module **702**, and detects whether the temperature sensor **784** measures an out of range temperature condition (e.g., exceeds one or more upper threshold values or falls below one or more lower threshold values), and, if so, and can control and adjust (via electrical signals over electrical connection lines, not shown in FIG. 7D) any or all of the bypass valves **744***a* and **744***b*, the EAC compressor **728***b*, pump **758**, fan(s) **726***b*, expansion value **730***b*, and AGS **748** to bring/maintain the temperature of the auxiliary battery **702***a* to a value within one or more permissible ranges. One or more fans **726***b* can direct air flow over the condenser **722***b* and/or over radiator **746** and AGS **748** through inlet air vents **752** and **754** and outlet air vents **756** and **758** shown in FIG. 7A.

[0068] Additional aspects of the disclosure are now described that are applicable to all of the examples previously described herein. As described above, the first electrical connector of the auxiliary battery module provides electrical power to the electric vehicle, and the first electrical connector may also be used to charge the auxiliary battery module, e.g., using a high-voltage battery charger. In addition, the controller, which can monitor the temperature of the primary battery and the temperature of the auxiliary battery module using respective temperature sensors, can carry out such temperature monitoring when the electric vehicle is not in use and may initiate cooling of the primary battery and/or the auxiliary battery module even when the vehicle is not in use, so as to prevent battery degradation from extreme outside environmental temperatures that may be experienced by the electric vehicle and auxiliary battery module.

[0069] In addition, in exemplary aspects, the auxiliary battery module may include one or more sensor pairing devices to detect proper placement and attachment of the auxiliary battery module, e.g., one or more interlock switch devices, an electronic chip, a radio frequency identification (RFID) chip, a magnet structure of a particular configuration, etc., and the electric vehicle **500** may include one or more associated sensors to detect or otherwise communicate with the sensor pairing device of auxiliary battery module. Such auxiliary battery modules may have unique identification numbers associated with them, those unique identification numbers may be detected using such sensing means. In examples, such sensing devices may be coupled to Bluetooth transceivers or other wireless devices that establish communication so as to permit the sensing devices to receive or generate a signal a signal that permits the controller (via the onboard computer included therewith) to monitor parameters of the auxiliary battery module, such as its temperature via a temperature sensor or voltage via voltage detection circuitry. In addition, wireless transceivers disposed at (e.g., in or on) the auxiliary battery module may pair and communicate not only with the onboard controller, but also with mobile computing devices such as smart phones, tablets, and other portable computerized devices, to provide diagnostics and information about the auxiliary battery module, e.g., to fleet technicians.

[0070] In some examples, when one or more auxiliary battery modules is attached to the electric vehicle, the vehicle's controller (with onboard computer system) may automatically identify characteristics of the auxiliary battery modules, e.g., weight and weight distribution, based on how many auxiliary battery modules are attached and based on the size and weight of those modules, e.g., given pre-tabulated information on those quantities based on a model number or unique identification number of the auxiliary battery module(s). The controller may then set a predetermined feature set for the electric vehicle based on the electric vehicle **500** being equipped with the auxiliary battery module(s). In examples, the predetermined feature set may comprise one or more ride performance characteristics including one or more of a limitation on a maximum permissible acceleration, a firmness of ride of the vehicle, braking performance/sensitivity, a nominal suspension height, and an effective steering ratio, and onboard computer **554** may select appropriate vehicle driving performance characteristics suitable for the vehicle configuration, such as placing a limitation on a maximum permissible acceleration, a firmness of ride of the vehicle, braking performance/sensitivity, a nominal suspension height, and an effective steering ratio.

[0071] The onboard computer of controller may include a computer processing system (one or more CPUs) and a non-transitory computer readable memory coupled to the processing system, wherein the processing system may be programmed to receive data signals and make decisions as described herein. In addition, application specific integrated circuits (ASIC) may be utilized to execute control functions described herein based on sensor measurements, e.g., such as temperature measurements, as described herein. The onboard computer of the controller may also include element managers, real-time data buffers, conveyors, file input processors, database indices, data buffers and data managers for managing data and processing. The onboard computer of the controller may execute software program instructions including source code, object code, machine code, or any other stored data that is operable to cause a processing system to perform the methods and operations described herein. Any suitable computer languages may be used such as C, C++, Java, etc., as will be appreciated by those skilled in the art. Other implementations may also be used, however, such as firmware or even appropriately designed hardware configured to carry out the methods and systems described herein.

[0072] It should be understood that as used in the description herein and throughout the claims that follow, the meaning of "a," "an," and "the" includes plural reference unless the context clearly dictates otherwise. Also, as used in the description herein and throughout the claims that follow, the meaning of "in" includes "in" and "on" unless the context clearly dictates otherwise. Finally, as used in the description herein and throughout the claims that follow, the